

# INTERNATIONAL SEARCH REPORT

Internal  
PCT/US 03/33066

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC 7 C02F1/02 C02F1/04 C02F1/20 C02F1/66 C02F1/42 C02F1/62 C02F1/64		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC 7 C02F		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, PAJ		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4 746 438 A (RIGGS JR OLEN L) 24 May 1988 (1988-05-24) column 1, line 5-19; claims 1-3; figure 1 column 2, line 46 -column 3, line 5 column 4, line 49-64 column 5, line 13-26 ---	1-112
Y	US 4 235 715 A (WIEGERT ROBERT E) 25 November 1980 (1980-11-25) column 1, line 6 -column 2, line 60; claims 1-3,7; figure 2 column 3, line 55-61 column 4, line 52-66 column 5, line 7-10,47-52 --- -/--	1-112
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.		
* Special categories of cited documents : *A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *G* document member of the same patent family		
Date of the actual completion of the international search 3 March 2004		Date of mailing of the international search report 11/03/2004
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer Kurtulan, M

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2 807 582 A (APPLEBAUM SAMUEL B) 24 September 1957 (1957-09-24) column 1, line 15-32; figure 1 column 2, line 43-50, 63-72 column 4, line 18-22; claims 1, 6 ---	1-112
Y	US 4 323 430 A (GLASSMAN DONALD ET AL) 6 April 1982 (1982-04-06) column 1, line 53 -column 2, line 3; figures 1, 2 column 3, line 1-4 column 7, line 115 -column 8, line 64; claims 1, 10, 15, 32 -----	1-112

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Information on patent family members

International

Search No

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4746438	A	24-05-1988	NONE
US 4235715	A	25-11-1980	AU 5522480 A 21-08-1980 DK 67080 A 17-08-1980 EP 0015098 A1 03-09-1980 ES 8102994 A1 16-05-1981 IE 800293 L 16-08-1980 JP 55116485 A 08-09-1980
US 2807582	A	24-09-1957	NONE
US 4323430	A	06-04-1982	AU 545054 B2 27-06-1985 AU 7920782 A 23-09-1982 BR 8201103 A 11-01-1983 CA 1163951 A1 20-03-1984 DE 3202903 A1 28-10-1982 FR 2501521 A1 17-09-1982 GB 2094649 A , B 22-09-1982 JP 57162690 A 06-10-1982 RO 85109 A1 24-09-1984 SE 8201286 A 17-09-1982